

CLAIMS

1. A mobile station (200) for use in a communication system having a base station (100), the mobile station comprising

5 power control signal generation means (250) for generating a power control signal for enabling the base station to adjust its transmit power level in accordance with a power control loop process,

report generation means (250) for generating reports from measurements of a characteristic of a signal received from the base station,

10 transmitter means (210) for transmitting the reports and the power control signal to the base station, and

15 transmission control means (250) adapted to control the time of transmission of the reports such that first of the reports are transmitted at a predetermined sequence of times and, in response to an interruption in the power control loop or the reporting, and for a period existing at least one of before, during and after the interruption, one or more second of the reports are transmitted at times not coincident with the predetermined times.

20 2. A mobile station as claimed in claim 1, wherein the power control signal comprises power control commands.

25 3. A mobile station as claimed in claim 1 or 2, wherein the report generation means (250) is adapted to generate at least one of the second reports from a measurement of shorter duration than the measurement duration used to generate the first reports.

30 4. A mobile station as claimed in claim 1, 2 or 3, wherein the report generation means (250) is adapted to generate the earliest report transmitted after the end of the interruption from a measurement commenced before the end of the interruption.

5. A mobile station as claimed in any of claims 1 to 4, wherein the transmission control means (250) is adapted to select, in response to an indication of the length of the interruption, the start time of the period for which the second reports are transmitted.

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6. A mobile station as claimed in any of claims 1 to 5, wherein the transmission control means (250) is adapted to select, in response to an indication of the length of the interruption, the duration of the period for which the second reports are transmitted.

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7. A mobile station as claimed in any of claims 1 to 5, wherein the transmission control means (250) is adapted to select, in response to an indication of the length of the interruption, the number of the second reports transmitted in the period.

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8. A mobile station as claimed in any of claims 1 to 5, wherein the duration of the period for which the second reports are transmitted is predetermined.

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9. A mobile station as claimed in any of claims 1 to 5, wherein the number of the second reports transmitted in the period is predetermined.

10. A mobile station as claimed in any of claims 1 to 5, wherein the period terminates when the next predetermined time occurs.

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11. A mobile station as claimed in any of claims 1 to 5, wherein the transmission control means (250) is adapted to terminate the period in response to an indication of convergence of the power control loop.

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12. A mobile station as claimed in claim 11, wherein the indication of convergence is a signal received from the base station (100).

13. A mobile station as claimed in claim 11, wherein the transmitter control means (250) is adapted to generate the indication of convergence in accordance with a predetermined criterion.

5 14. A mobile station as claimed in claim 13, wherein the predetermined criterion is a reversal of the sign of at least one power control command.

10 15. A mobile station as claimed in any of claims 1 to 14, wherein the report generation means (250) is adapted to suspend generation of the first reports during the interruption.

15 16. A mobile station as claimed in any of claims 1 to 15, wherein the transmission control means (250) is adapted to, after one or more second reports have been transmitted, apply a time shift to the predetermined sequence of times for the transmission of subsequent first reports.

20 17. A radio communication system (50) comprising a base station (100) and at least one mobile station (200) as claimed in any of claims 1 to 16.

25 18. A method of operating a radio communication system having a base station and a mobile station, comprising, at the mobile station,
generating a power control signal for enabling the base station to adjust its transmit power in accordance with a power control loop process,
transmitting the power control signal to the base station,
generating reports from measurements of a characteristic of a signal received from the base station, and
transmitting the reports to the base station,
interrupting the power control loop or the reporting and, at the mobile
30 station,
controlling the time of transmission of the reports such that first of the reports are transmitted at a predetermined sequence of times and, in response

to the interruption, and for a period existing at least one of before, during and after the interruption, second of the reports are transmitted at times not coincident with the predetermined times.

5 19. A method as claimed in claim 18, wherein the power control signal comprises power control commands.

20. A method as claimed in claim 18 or 19, wherein at least one of the second reports is generated from a measurement of shorter duration than
10 the measurement duration used to generate the first reports.

21. A method as claimed in claim 18, 19 or 20, wherein the earliest report transmitted after the end of the interruption is generated from a measurement commenced before the end of the interruption period.

15 22. A method as claimed in any of claims 18 to 21, comprising selecting, in response to an indication of the length of the interruption, the start time of the period for which the second reports are transmitted.

20 23. A method as claimed in any of claims 18 to 22, comprising selecting, in response to an indication of the length of the interruption, the duration of the period for which the second reports are transmitted.

25 24. A method as claimed in any of claims 18 to 22, comprising selecting, in response to an indication of the length of the interruption, the number of the second reports transmitted in the period.

30 25. A method as claimed in any of claims 18 to 22, wherein the duration of the period for which the second reports are transmitted is predetermined.

26. A method as claimed in any of claims 18 to 22, wherein the number of the second reports transmitted in the period is predetermined.

27. A method as claimed in any of claims 18 to 22, wherein the 5 period terminates when the next predetermined time occurs.

28. A method as claimed in any of claims 18 to 22, comprising terminating the period for which the second reports are transmitted in response to an indication of convergence of the closed loop power control process.

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29. A method as claimed in claim 28, comprising generating the indication of convergence at the base station in accordance with a predetermined criterion and transmitting the indication of convergence from the base station to the mobile station.

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30. A method as claimed in claim 28, comprising generating the indication of convergence at the mobile station in accordance with a predetermined criterion.

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31. A method as claimed in claim 29 or 30, wherein the predetermined criterion is a reversal of the sign of at least one power control command.

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32. A method as claimed in any of claims 18 to 31, comprising suspending the generation of the first reports during the interruption.

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33. A method as claimed in any of claims 18 to 32, comprising, after one or more second reports have been transmitted, applying a time shift to the predetermined sequence of times for the transmission of subsequent first reports.

34. A base station (100) for use in a radio communication system, comprising

transmitter power control means (150) for, in response to a first signal received from a mobile station (200), setting the transmit power level of a first transmitted signal in accordance with a power control loop process,

control means (150) for selecting, in response to reports received from the mobile station (200) at a predetermined sequence of times, a parameter of a second transmitted signal, and

scheduling means (150) for scheduling an interruption in the power control loop process or the reporting, and

indicating means for generating for transmission to the mobile station (200) in response to the interruption an indication of one or more further reports to be transmitted for a period at times not coincident with the predetermined times.

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35. A base station as claim in claim 34, wherein the first received signal is a transmit power control command.

36. A base station as claimed in claim 34 or 35, wherein the indication comprises at least one of the start time, end time and duration of the period.

37. A base station as claim in claim 34, 35 or 36, wherein the scheduling means (150) is adapted to determine the end time of the period in response to an indication of convergence of the power control loop process.

38. A base station as claim in claim 34, 35 or 36, wherein the scheduling means (150) is adapted to determine at least one of the start time, end time and duration of the period to be dependent on the length of the scheduled interruption.